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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,561	02/12/2001	Stephan W. Wegerich	086470-9012	1550

7590   03/10/2004

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EXAMINER
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ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,9-13,21-23,29-32,36,38-44 and 46-48* is/are rejected.

7)☒ Claim(s) *2-8,14-20,24-28,33-35,37,45 and 49* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6 and 7*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

This Office Action is in response to patent application S/N: 09/780,561, filed on

02/12/2001. Claims 1-49 are now pending.

Drawings

This application has filed with informal drawings which are acceptable for

examination only.

Information Disclosure Statement

The information disclosure statements filed 10/02/2001 and 12/18/2001 have

been received and considered.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 9-13, 21-23, 29-32, 36, 38-44, and 46-48 are rejected under 35 U.S.C.

103(a) as being unpatentable over Gross et al, US patent no. 6,119,111.

As per claims 1 and 9, Gross discloses a method and system for pattern

recognition with feature limitations very similar to the claimed invention. According to

Gross, the system includes means:

Memory for storing a plurality of history snapshot of one more sensor signals,

such snapshot data forming a training matrix corresponding to a universe of identified

states of a monitored system (col. 2, lines 13-42),

A data acquisition unit receiving signals from the sensors, each received signal being representative of a system parameters at a selected monitored time (Fig. 1).

An information processor coupled to the data acquisition unit acquiring real time snapshots as state vectors indicative of observed states of the monitored system (col. 3, line 54 to col. 4, line 32, for example),

A similarity operator (col. 4, line 33 to col. 5, line 37) implemented within the information processor operable on state vectors with the training matrix for the memory to determine the degrees of similarity and similarity relationships between observed vectors as claimed (cols. 4-6), and the similarity function is being defined to measure how similar the matrix vectors are. Gross does not expressly disclose the similarity criteria as claimed.

Practitioner in the art at the time of the invention was made would have found the similarity functions as defined in Gross would imply the claimed criteria, the measure differences divided by expected ranges, in order to measure the similarity between estimate vectors for the system under monitor.

As per claims 10-13, Gross disclosure includes such limitations in order to determine the degree of similarity between measures.

As per claim 21, claim 21 is a computer program product for controlling and performing monitoring process as in method claim 1 above, and Gross also discloses computer program including program code means to perform:

Memory for storing a plurality of history snapshot of one more sensor signals, such snapshot data forming a training matrix corresponding to a universe of identified states of a monitored system (col. 2, lines 13-42),

A data acquisition unit receiving signals from the sensors, each received signal being representative of a system parameters at a selected monitored time (Fig. 1).

An information processor coupled to the data acquisition unit acquiring real time snapshots as state vectors indicative of observed states of the monitored system (col. 3, line 54 to col. 4, line 32, for example),

A similarity operator (col. 4, line 33 to col. 5, line 37) implemented within the information processor operable on state vectors with the training matrix for the memory to determine the degrees of similarity and similarity relationships between observed vectors as claimed (cols. 4-6), and the similarity function is being defined to measure how similar the matrix vectors are. Gross does not expressly disclose the similarity criteria as claimed.

Practitioner in the art at the time of the invention was made would have found the similarity functions as defined in Gross would imply the claimed criteria, the measure differences divided by expected ranges, in order to measure the similarity between estimate vectors for the system under monitor.

As per claim 22, Gross discloses a program code product for probability ratio test for input sensor and estimated sensor data as claimed.

As per claim 23, Gross discloses the similarity operator as claimed for measure of the degree of similarity between data.

As per claim 29, claim 29 is directed to an apparatus for measure of similarity of sensing data. Gross discloses a method and system for pattern recognition with feature limitations very similar to the claimed invention. According to Gross, the system includes means:

Memory for storing a plurality of history snapshot of one more sensor signals, such snapshot data forming a training matrix corresponding to a universe of identified states of a monitored system (col. 2, lines 13-42),

A data acquisition unit receiving signals from the sensors, each received signal being representative of a system parameters at a selected monitored time (Fig. 1).

An information processor coupled to the data acquisition unit acquiring real time snapshots as state vectors indicative of observed states of the monitored system (col. 3, line 54 to col. 4, line 32, for example),

A similarity operator (col. 4, line 33 to col. 5, line 37) implemented within the information processor operable on state vectors with the training matrix for the memory to determine the degrees of similarity and similarity relationships between observed vectors as claimed (cols. 4-6), and the similarity function is being defined to measure how similar the matrix vectors are. Gross does not expressly disclose the similarity criteria as claimed.

Practitioner in the art at the time of the invention was made would have found the similarity functions as defined in Gross would imply the claimed criteria, the measure differences divided by expected ranges or reference values, in order to measure the similarity between estimate vectors for the system under monitor.

As per claims 30-32, Gross discloses the claimed subject matters for similarity measurement.

As per claims 36, similarly, claim 36 is directed to engine as in the apparatus or system claims above. Gross discloses a method and system for pattern recognition with feature limitations very similar to the claimed invention. According to Gross, the system includes means:

Memory for storing a plurality of history snapshot of one more sensor signals, such snapshot data forming a training matrix corresponding to a universe of identified states of a monitored system (col. 2, lines 13-42),

A data acquisition unit receiving signals from the sensors, each received signal being representative of a system parameters at a selected monitored time (Fig. 1).

An information processor coupled to the data acquisition unit acquiring real time snapshots as state vectors indicative of observed states of the monitored system (col. 3, line 54 to col. 4, line 32, for example),

A similarity operator (col. 4, line 33 to col. 5, line 37) implemented within the information processor operable on state vectors with the training matrix for the memory to determine the degrees of similarity and similarity relationships between observed vectors as claimed (cols. 4-6), and the similarity function is being defined to measure how similar the matrix vectors are. Gross does not expressly disclose the similarity criteria as claimed.

Practitioner in the art at the time of the invention was made would have found the similarity functions as defined in Gross would imply the claimed criteria, the measure

differences divided by expected ranges, in order to measure the similarity between

estimate vectors for the system under monitor.

As per claims 38-43, Gross discloses the claimed matters for data similarity

measurements.

As per claim 44, Gross discloses a method and system for pattern recognition

with feature limitations very similar to the claimed invention. According to Gross, the

system includes means for performing steps:

Storing a plurality of history snapshot of one more sensor signals, such snapshot

data forming a training matrix corresponding to a universe of identified states of a

monitored system (col. 2, lines 13-42),

A data acquisition unit receiving signals from the sensors, each received signal

being representative of a system parameters at a selected monitored time (Fig. 1).

An information processor coupled to the data acquisition unit acquiring real time

snapshots as state vectors indicative of observed states of the monitored system (col. 3,

line 54 to col. 4, line 32, for example),

A similarity operator (col. 4, line 33 to col. 5, line 37) implemented within the

information processor operable on state vectors with the training matrix for the memory

to determine the degrees of similarity and similarity relationships between observed

vectors as claimed (cols. 4-6), and the similarity function is being defined to measure

how similar the matrix vectors are. Gross does not expressly disclose the similarity

criteria as claimed.

Practitioner in the art at the time of the invention was made would have found the similarity functions as defined in Gross would imply the claimed criteria, the measure differences divided by expected ranges, in order to measure the similarity between estimate vectors for the system under monitor.

As per claims 46, 47, and 48, Gross discloses such limitations for measurement of similarity between vectors in the data matrix.

Allowable Subject Matter

Claims 2-8, 14-20, 24-28, 33-35, 37, 45, and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The claims are directed to a subject matter to especially measure the degree of similarity of vectors of sensor data matrix. The closet prior art in the record does not expressly disclose such claimed subject matter.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1.   US patent no. 4,931,977, issued to Klemes, Marek, on June 1990

2.   US patent no. 5,005,147, issued to Krishen et al., on Apr. 1991

3.   US patent no. 6,181,975 B1, issued to Gross et al., on Jan. 2001

4.   US patent application no. US 2002/0087290 A1, issued to Wegerich et al., on July 2002

5.   US patent application no. US 2002/0091499 A1, issued to Wegerich et al., on

July 2002

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to examiner Thai Phan whose telephone number is 703-

305-3812.

The fax phone number for the organization where this application or proceeding

is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

Thai Phan
Mar. 05, 2004

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